

Date: Thursday, 08/01/2009 1:17:50 PM
 User: Julie Dawson

Process Sheet

Customer :	CU-DAR001 Dart Helicopters Services	Drawing Name :	206L AFT X-TUBE
Job Number :	44508		
Estimate Number :	13222		
P.O. Number :		Part Number :	D206667203TRN
This Issue :	08/01/2009	S.O. No. :	
Prsht Rev. :	NC	Drawing Number :	D206-667-243 REVC
First Issue :	//	Project Number :	N/A
Previous Run :	43533	Drawing Revision :	C
	Type :	Material :	
	CROSSTUBES	Due Date :	15/01/2009
Written By :		Qty:	1
		Um:	Each
Checked & Approved By :	DD 09.01.08		
Comment :	Est Rev:A 08-03-06 new issue DD verified by:ec Est Rev B 08.04.02 Removed polish EC verified by: DD Est Rev C 09.01.06 ECN 08-562 EC verified by:DD		

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
---------	-----------------------	---------------

1.0	D6004115	Crosstube Material
-----	----------	--------------------



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty Part number Description Batch

1 D6004-115 Crosstube B34774

Check OD = 2.500"; ID = 1.800"

Q.M 09.01.08 ©

2.0	MORI SEIKI	MORI SEIKI CNC LATHE LARGE
-----	------------	----------------------------

**Comment:** MORI SEIKI CNC LATHE LARGE

1-Fill tube with sand & install plugs DT8534 on both ends as per Folio FA089

2-Turn first side as per Folio FA089

3-File down transition lines smooth.

Q.M 09.01.10 ©

3.0	QC1	INSPECT ALL DIM TO DIM SHEET
-----	-----	------------------------------

**Comment:** INSPECT ALL DIM TO DIM SHEET

Q.M 09.01.10 ©

4.0	MORI SEIKI	MORI SEIKI CNC LATHE LARGE
-----	------------	----------------------------

**Comment:** MORI SEIKI CNC LATHE LARGE

1-Turn second side as per Folio FA089

2-File down transition lines smooth.

Q.M 09.01.10 ©

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Thursday, 08/01/2009 1:17:50 PM
User: * Julie Dawson

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 206L AFT X-TUBE

Job Number: 44508

Part Number: D206667203TRN

Job Number:



Seq. #:

Machine Or Operation:

Description :

3-Remove sand and plugs

4-Scrib part# and batch #

A.M 09.01.10 ①

5.0

QC1

INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

A.M 09.01.10 ①

6.0

QC8

SECOND CHECK



Comment: SECOND CHECK

AWM 9-1-13 ①

7.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

AWM 9-1-13 ①

8.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

A.M 09.01.13 ①

9.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock in kanban rack

Location:

X-TUBE CELL

AWM 9-1-13 ①

10.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

09/01/14 J

Job Completion



ME 09-01-13

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order: 44508
Description: Crosstube Assembly		Part Number: D206-667-243
Inspection Dwg: D206-667-243 Rev: B		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article
 ☐ Prototype

Inspection Sheet	Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.490	+0.005/-0.000	2.495	/			
	2.018	+0.005/-0.000	2.023	/			
	2.079	+0.005/-0.000	2.084	/			
	2.145	+0.005/-0.000	2.150	/			
	2.209	+0.005/-0.000	2.214	/			
	2.287	+0.005/-0.000	2.292	/			
	2.363	+0.005/-0.000	2.367	/			
	2.433	+0.005/-0.000	2.436	/			
	0.200	+/-0.010	0.200	/			
	0.500 x 30°	+/-0.010	0.500x30	/			
	R0.063	+/-0.010	R0.063	/			
	R0.500	+/-0.010	R0.500	/			
	4.438	+/-0.030	4.438	/			
SIDE B	104.91	+/-0.020	104.905	✓			
	2.490	+0.005/-0.000	2.495	/			
	2.018	+0.005/-0.000	2.023	/			
	2.079	+0.005/-0.000	2.084	/			
	2.145	+0.005/-0.000	2.150	/			
	2.209	+0.005/-0.000	2.214	/			
	2.287	+0.005/-0.000	2.292	/			
	2.363	+0.005/-0.000	2.367	/			
	2.433	+0.005/-0.000	2.436	/			
	0.200	+/-0.010	0.200	/			
	0.500 x 30°	+/-0.010	0.500x30	/			
	R0.063	+/-0.010	R0.063	/			
	R0.500	+/-0.010	R0.500	/			
	4.438	+/-0.030	4.438	/			

Measured by: a.m	Audited by: AWM	Prototype Approval: N/A
Date: 09.01.10	Date: 9-1-13	Date: N/A

Rev	Date	Change	Revised by	Approved
A	06.09.01	New Issue (P/O D206-667-203)	KJ/JLM	

Item	Qty	Part Number	Description
	-243		
1	X	D206-667-243	CROSSTUBE ASSEMBLY (206L HIGH AFT)
2	1	D6004-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2892-1	SUPPORT
6	4	D3595-063-450	RUBBER CUSHION
7	4	MS21920-22	CLAMP
8	14	MS20601AD4W10	RIVET (OR NAS9302B-4-10)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299- 947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

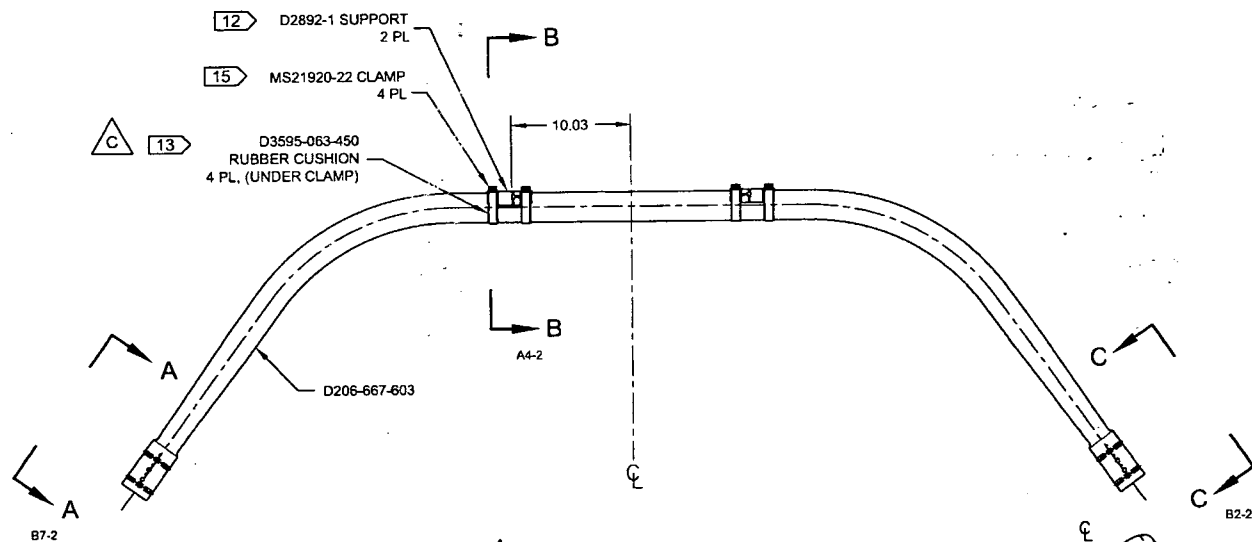
- 1) MATERIAL: MANUFACTURED FROM D6004-115
FINISHED LENGTH = 104.91±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-243" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 21.9 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2892-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-22 CLAMPS WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2892-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

RELEASED
08/11/17

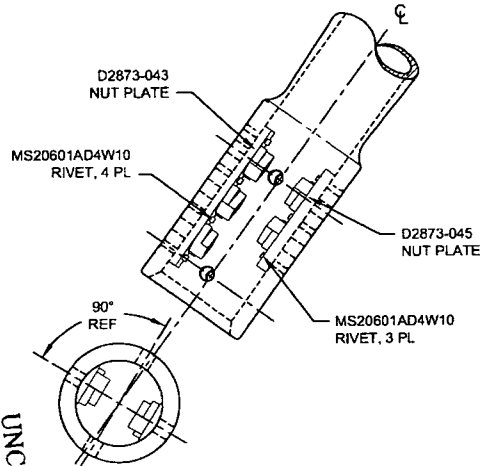
C	REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-450 WAS D2856-400-773 (ZN D6-2 & A5-2); REMOVED REF. & ADD TOLERANCES (ZN 4-3, C5-3, D3-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.06
B	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKUDTUBES	PH	05.07.26
A	NEW ISSUE	CP	00.11.17
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	RF	DRAWING NO.	REV. C
MFG. APPR.	RF	D206-667-243	SHEET 1 OF 4
APPROVED	RF	TITLE	SCALE
DE APPR.	RF	CROSSTUBE ASSY (206L HIGH AFT)	NTS
DATE	08.11.06	COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL, AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

NO. 41508
WORK ORDER
WITHOUT NOTICE
SUBJECT TO AMENDMENT
UNCONTROLLED COPY
ENGINEERING
RETURN TO
SHOP COPY

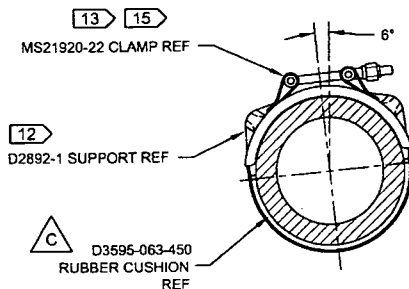
8 7 6 5 4 3 2 1



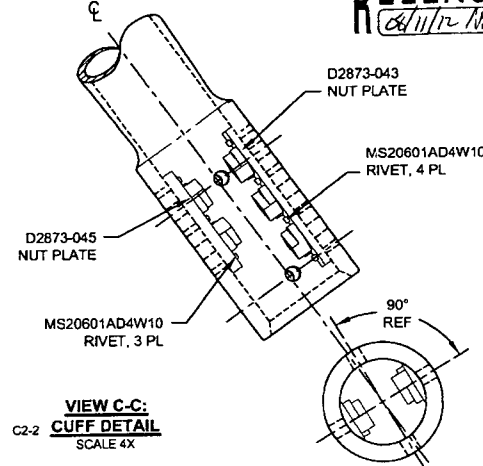
D206-667-243
ASSEMBLY DETAIL
(VIEW LOOKING FWD)



VIEW A-A:
CUFF DETAIL
SCALE 4X



SECTION B-B
SCALE 5X



VIEW C-C:
CUFF DETAIL
SCALE 4X

RELEASED
08/11/12

DESIGN	97	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	RF	DRAWING NO.	REV. C
MFG. APPR.	RF	D206-667-243	SHEET 2 OF 4
APPROVED	RF	TITLE	SCALE
DE APPR.	RF	CROSSTUBE ASSY (206L HIGH AFT)	NTS
DATE	08.11.06	<small>COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
N644500

8

7

6

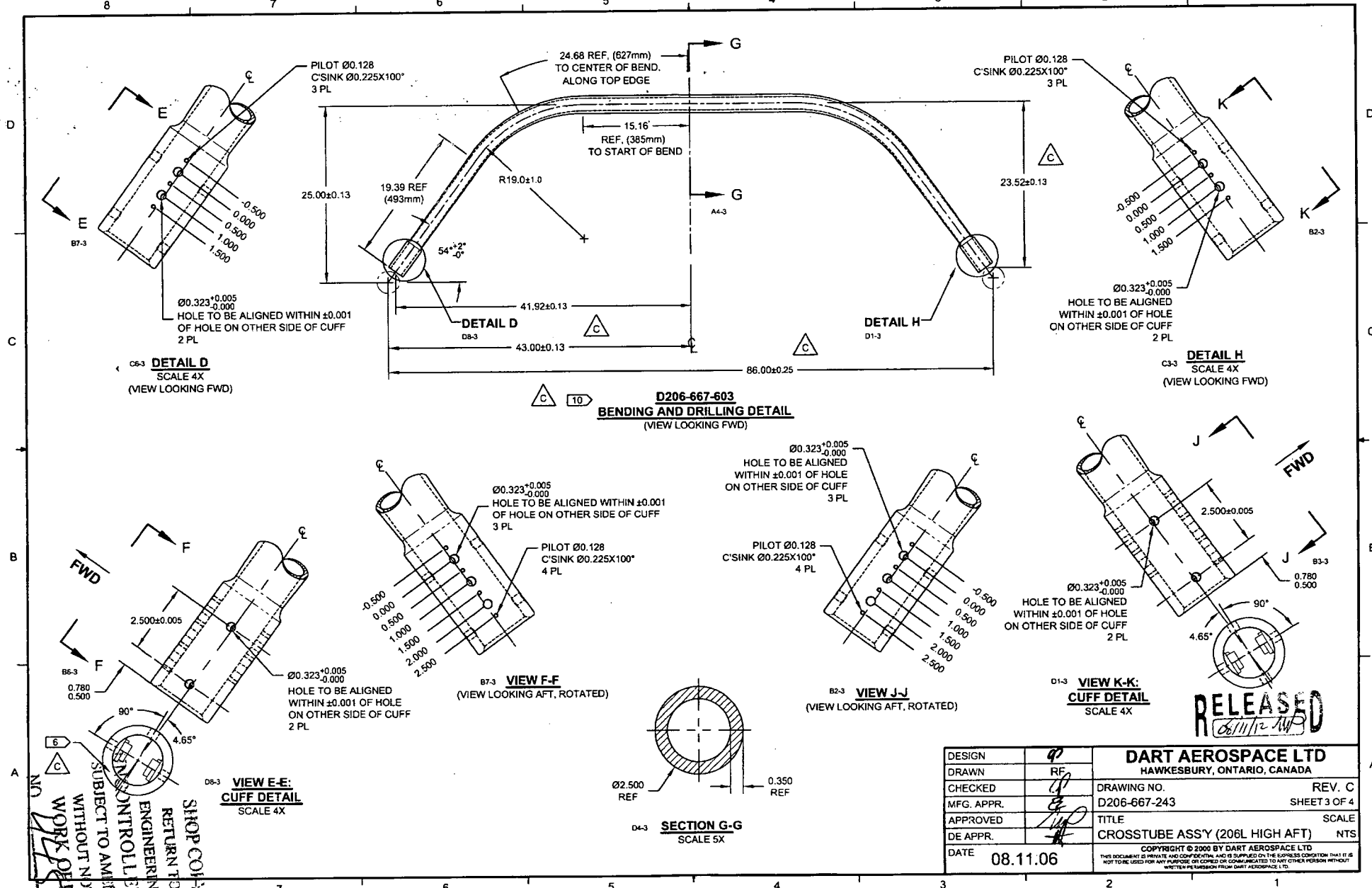
5

4

3

2

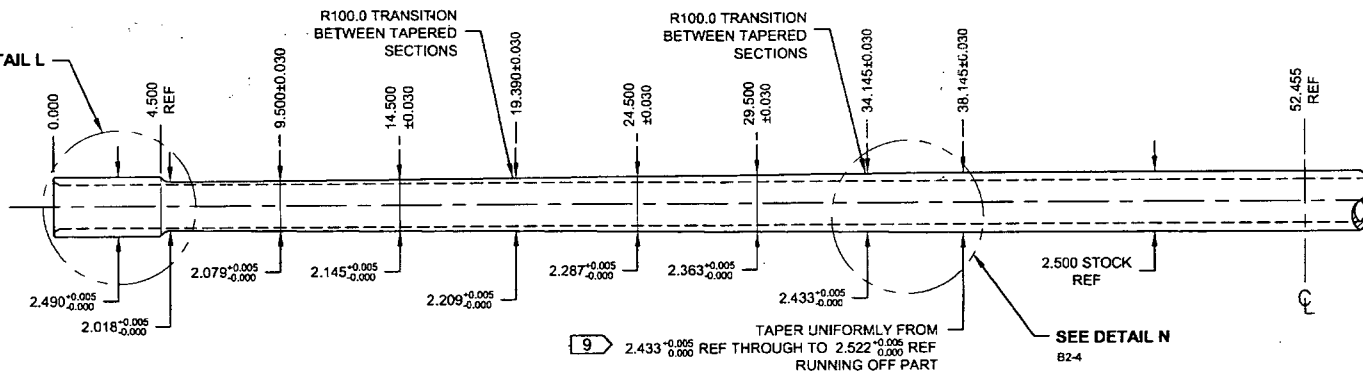
1



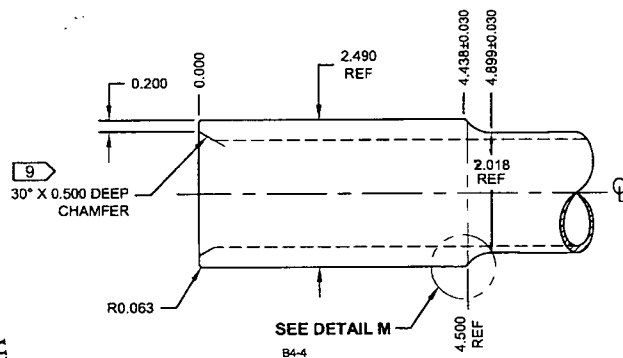
DESIGN	90	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	JP	DRAWING NO.	REV. C
MFG. APPR.	JP	D206-667-243	SHEET 3 OF 4
APPROVED	JP	TITLE	SCALE
DE APPR.	JP	CROSSTUBE ASSY (206L HIGH AFT)	NTS
DATE	08.11.06	COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

SHOP COPY
RETURN TO
ENGINEERING
CONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 144802

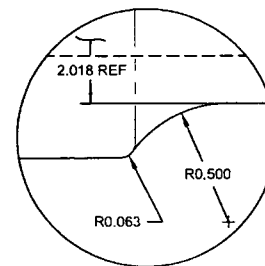
SEE DETAIL L
B7-4



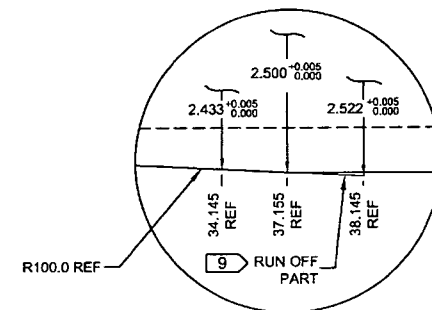
TURNING DETAIL



DETAIL L: CROSSTUBE CUFF
NOT TO SCALE



DETAIL M: CUFF TRANSITION
NOT TO SCALE



DETAIL N: TAPER RUN-OFF
NOT TO SCALE

RELEASED

DESIGN	9P	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	9P	DRAWING NO. D206-667-243	REV. C SHEET 4 OF 4
MFG. APPR.	9P	TITLE	SCALE
APPROVED	9P	CROSSTUBE ASS'Y (206L HIGH AFT)	NTS
DE APPR.	9P	COPYRIGHT © 2000 BY DART AEROSPACE LTD	
DATE	08.11.06	THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

NO
 WORK ORDER
 WITHOUT NOTICE
 UNCONTROLLED COPY
 SUBJECT TO AMENDMENT
 ENGINEERING
 RETURN TO
 SHOP COPY
 14/11/06